

Community attitudes toward possums in metropolitan Melbourne

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Abstract

Community attitudes toward urban possums in Victoria were examined. 500 questionnaires were sent to a random sample of residents from metropolitan Melbourne ($n=103$) as well as people who had had experiences with possums ($n=340$). Negative attitudes toward possums were found to exist in the community and these attitudes were not restricted to those who have had problems with possums. However, the extent of possum problems may be less than commonly believed, as over half of the respondents to newspaper stories calling for people with 'possum experiences' reported positive experiences with possums. Increasing media emphasis on positive experiences with possums and school-based education programs are identified as possible strategies for reducing conflicts and learning to live with possums in urban environments. (*The Victorian Naturalist* 127 (1) 2010, 4-10)

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Introduction

A recent study (Hill *et al.* 2007) suggested that attitudes toward urban possums in Sydney were influenced by perceptions of possums more so than direct negative experience. However, the same study also suggested the presence of possums in ceiling cavities is important in determining attitudes. This highlights the fact that attitudes are shaped by a number of different factors including knowledge/awareness, socioeconomic status, past experience and social norms (Kellert 1996; Tarrant *et al.* 1997; Manfredi *et al.* 2003). Circumstantial factors can also influence attitudes toward wildlife. For example, the abundance of the species in question has been shown to influence attitudes (West and Parkhurst 2002); and almost any species, once it reaches high population numbers, can be regarded as a pest (Decker *et al.* 2001; DeStefano and Desblinger 2005).

Understanding public attitudes toward wildlife is important if we wish to minimise human-wildlife conflicts and encourage the community to live harmoniously with the local fauna. In Victoria, there is a need to understand public attitudes toward two species of possum, the Common Brushtail Possum *Trichosurus vulpecula* and Common Ringtail Possum *Pseudocheirus peregrinus*. Both species have thrived in the urban environment and are the most widespread and abundant native mammals throughout Melbourne (van der Ree 2004). In contrast to its abundance in the urban envi-

ronment, the Common Brushtail Possum has vanished from much of its former range in arid Australia (Temby 2005), highlighting the need for conservation of this species.

The Common Brushtail Possum, a nocturnal marsupial, utilises hollow branches, tree trunks, and fallen logs as den sites during the day. However, in urban areas such naturally occurring sites are often limited, resulting in the use of house roof cavities as den sites (How and Kerle 1995). This often results in conflict between humans and possums for a variety of reasons: possums often do not emerge from the roof until well after dark, resulting in their loud vocalisations and thumping noises disturbing the household; they sometimes leave urine stains on ceilings; and they can create cracks or holes in plaster ceilings and walls (Temby 2005). In contrast, the Common Ringtail Possum usually constructs its own nest, or drey, a ball of leaves and twigs placed in a shrub, tree or vine, but will occasionally utilise house roof cavities.

Problems commonly associated with both species include: noise resulting from possums walking or jumping on roofs during the night; indirect noise from dogs barking at possums; damage to gardens as a result of possums defoliating trees and eating flowers; and aesthetic annoyances such as droppings in the driveway and general odour (Temby 2005). Conflicts between human neighbours are also known to

arise in situations where one enjoys the presence of possums and encourages them to their yard through feeding, and the other dislikes the presence of possums and objects to their encouragement (Temby 2005). In response to these problems, the Victorian Department of Natural Resources and Environment (now the Department of Sustainability and Environment) implemented the Victorian *Living with Possums* policy in 1997. The policy was intended to help alleviate the human-possum conflict and promote a humane approach to sharing the urban environment with possums.

Trapping and translocating nuisance possums had previously been the preferred method of management in Victoria (Department of Natural Resources and Environment 1997). However, translocation studies showed that translocated possums tend to have very low survival rates (Augee *et al.* 1996; Pietsch 1994) so this was not considered a humane management option. In response, a Governor in Council Order made the translocation of trapped possums illegal, and the *Living with Possums* policy stated that 'trapped possums must be released after sunset on the day of capture on the same property within 50 metres of the capture site or taken to a veterinarian for euthanasia' (Department of Natural Resources and Environment 1997, p.11). It has been shown that non-compliance with the *Living with Possums* policy is widespread within the Victorian community and that those with negative attitudes are less likely to adhere to the policy (Whiting and Miller 2008). This is a concern given the animal welfare issues associated with translocation.

Previous studies by Miller *et al.* (1999), Matthews *et al.* (2004) and Wilks *et al.* (2008) have revealed negative attitudes toward possums in urban areas in Australia. Miller *et al.* (1999) examined attitudes toward possums in the Melbourne suburban municipality of Knox and found that 33.1% of respondents had negative attitudes toward possums. Work done by the NSW National Parks and Wildlife Service (2002) found that 39% of respondents from across NSW would not like to have possums in their backyard. Negative attitudes toward urban wildlife are not limited to possums nor are they specific to Australia. Studies focusing on community attitudes toward wildlife consistently find that many people have negative attitudes toward local wildlife.

For example, West and Parkhurst (2002) found that negative attitudes toward deer existed in Virginia; and DeStefano and Desblinger (2005) discuss negative attitudes toward beavers in Massachusetts and mountain lions throughout the western U.S.A.

Considering urbanisation results in dramatic losses of indigenous species (Collinge 1996), the willingness of the community to live alongside wildlife is important in such areas if we are to move towards more biodiverse urban landscapes. The *Living with Possums* policy is aimed at working towards this vision, as it encourages the community to live with possums, and, therefore, has the potential to facilitate the development of positive attitudes toward urban wildlife. However, non-compliance with the policy is common (Whiting and Miller 2008) and if a significant portion of the community has negative attitudes toward possums, the vision of the policy may not be obtainable. In addition, severe ill-treatment of brushtail possums has been reported (Wilks *et al.* 2008), highlighting the need for a greater understanding of attitudes, as knowledge about public attitudes toward wildlife is essential to accomplishing many management goals (Pierce *et al.* 2001). Therefore, understanding community attitudes toward urban possums and what determines these attitudes is important if the management aim of 'living with possums' is to be achieved. The aim of this study was to examine community attitudes toward possums in Melbourne, and to determine whether the management vision of 'living with possums' is obtainable.

Methods

This study was part of a review of the Victorian *Living with Possums* policy and had two main aims: to determine the level of community awareness and compliance with the policy, and to gauge community attitudes toward possums. This paper focuses on community attitudes toward possums, with community awareness and compliance the subject of a separate paper (Whiting and Miller 2008).

General Public Sample

A self-administered, mail questionnaire was developed in order to gauge community attitudes toward possums and the policy. The eight-page survey consisted of three sections, focusing on key elements of the value-attitude-behaviour hierarchy (Fulton *et al.* 1996). The

first section asked for demographic information such as age bracket and level of education. This was included to determine whether these factors are related to attitudes toward possums. The second section was concerned with determining community awareness of the policy. The third section concentrated on respondent attitudes toward possums and wildlife in general and included questions regarding attitudes toward possums in suburbia and possums as pests. This section was included to gauge public attitudes toward possums and is the focus of this paper.

A total of 500 people from across metropolitan Melbourne were selected using systematic random sampling of the *Melbourne 2006 Residential White Pages* telephone directory. The number of surveys was determined by economic and time constraints, but was comparable to similar studies (see Miller *et al.* 1999; FitzGibbon and Jones 2006). Participants received a covering letter, consent form, and reply-paid envelope with their survey. In an effort to increase the response rate, surveys were addressed to a specific person, rather than the 'The Resident'; participants were offered the chance to win a \$50 book voucher; and reminder letters were sent approximately two weeks after the first mail-out (method adapted from Dillman 2000).

Possum Experience Sample

This sample consisted of people who had had experiences with possums, defined as either in the past or currently having possums living in their house/roof or garden, or either in the past or currently having possums that visit their property. Although this sample was originally designed to gauge the level of community compliance with the *Living with Possums* policy, the data yielded important information on community attitudes toward possums. The Victorian *Information Privacy Act 2000* did not allow us to contact individuals known to have had possum experiences. To overcome this, print media were contacted and an article outlining the research and asking readers with possum experiences to contact the researcher to request a survey appeared in both local and state-wide newspapers. The survey was an eight-page, self-administered questionnaire developed to assess the actions taken primarily by people with possum problems. The first section focused on demographic information such as age

bracket and level of education. The second section concentrated on information about the respondent's experiences with possums on their property and methods used to deal with those possums. The third section was concerned with respondents' knowledge of the policy and general knowledge about possums. The fourth section asked about the respondent's views and attitudes towards possums.

The story first appeared in local *Leader* community newspapers and called for people with possum experiences, 'be they good or bad' to take part in the study. In total, eight *Leader* community newspapers ran the article and the response saw more callers with positive attitudes toward possums than negative. All callers were sent a survey to complete; however, the subsequent survey response from these callers saw this ratio dramatically change; the most likely reason being that the survey was designed for people with possum problems and this may have discouraged people with positive attitudes from completing it. Therefore, it was decided that any further articles should concentrate on only recruiting those with negative possum experiences. One month later, a small article was published in the state-wide *Herald Sun* newspaper, calling for people who had experienced problems with possums. As a result of the *Herald Sun* newspaper coverage, a radio announcement on ABC radio in Melbourne resulted in further recruitment of participants for the study. A substantial number of respondents still reported positive experiences, which led to such respondents being interviewed over the phone rather than sent a survey that was not designed for their situation. All phone interviews were conducted by the same researcher who asked five questions designed to obtain a general overview of the caller's experience. The questions focused on species involved, feeding, nest boxes, damage to the garden, and possums in the roof.

Data Analysis

Quantitative questionnaire data were coded and entered into SPSS (Statistical Package for the Social Sciences) version 12.0. Qualitative data obtained from open-ended survey questions and phone interviews were analysed by the principal author for key themes and then coded and entered into SPSS for statistical analysis. Descriptive statistics were used in the analysis and, due to the categorical nature of

the data and lack of continuous variables, the chi-squared test for independence and Fisher's exact test were used for examining differences and relationships between groups. Comparative data were considered statistically significant at $P \leq 0.05$.

Results

General Public Sample

A total of 103 completed surveys were received and 61 were returned to sender, resulting in a response rate of 23%. Despite this low response rate, key findings were comparable to findings of previous studies on possum attitudes (Miller *et al.* 1999; Matthews *et al.* 2004). Furthermore, when the demographic profile of the sample was compared to 2001 Census data (Australian Bureau of Statistics 2001), it was found that the sample and Census data did not differ significantly in gender ($\chi^2 = 2.761$, $df = 1$, $p = 0.097$), or country of birth ($\chi^2 = 2.956$, $df = 1$, $P = 0.086$). However, the age structure of the sample was found to differ significantly from the 2001 Census data ($\chi^2 = 44.466$, $df = 3$, $p < 0.001$), with higher percentages of those over 49 years of age. Despite this departure from the Census data, a range of ages displaying approximately equal divisions of gender, education, and country of birth responded to the survey. Considering these factors, the sample was considered adequate for the purposes of this study. However, non-response bias could not be ruled out and the results have been interpreted with this in mind.

Overall, 32% of respondents had negative attitudes toward possums, 63.1% indicated their attitudes towards possums were positive and 4.9% did not indicate their attitude. 23.5% of respondents with no direct possum experiences considered them to be a pest and had negative attitudes toward them.

Of respondents, 38.9% indicated wildlife should be encouraged in the suburbs, 16.5% thought that only certain species should be encouraged, 40.8% were opposed to encouraging wildlife, and 2.9% did not respond to the question. Those who believed wildlife should be encouraged were significantly more likely to approve of possums in suburbia ($\chi^2 = 30.121$, $df = 2$, $p < 0.001$). Despite this relationship, believing that wildlife should be encouraged did not guarantee that a respondent would feel similarly about possums, as 34.1% of those who felt wildlife should be encouraged in the suburbs

did not believe possums belonged there. In addition, 76.5% of respondents who indicated that only certain species of wildlife should be encouraged also felt that possums did not belong in the suburbs.

Possum Experience Sample

In total, 340 people were surveyed for this aspect of the research. As a result of the stories in local newspapers, 120 phone calls were received and all were sent surveys. Of these callers, 67% indicated positive experiences with possums with the remainder reporting negative experiences (no respondents reported both). Of 87 surveys completed and returned, only 36% had positive experiences. A total of 253 individuals responded to the story that appeared in the *Herald Sun*; 43% reported negative experiences and 57% reported positive experiences.

Discussion

This study has shown that, whilst about one third of the community has negative attitudes towards possums, the number of people experiencing problems with possums may not be as high as commonly perceived. The majority of respondents to local *Leader* newspaper articles calling for 'good or bad experiences' were positive about possums. This is further supported by the fact that the *Herald Sun* article calling for people with possum problems resulted in approximately half of the respondents expressing positive experiences with possums. Despite this, it is extremely common for the negative aspects of urban possums to be highlighted by the Victorian media (e.g. Edwards, *Frankston Standard Leader*; Tullberg, *Waverley Leader*; Fawcett, *Sunday Herald Sun*; Hudson, *Herald Sun*). Why should this be the case? Those who hold negative views on possums may do so extremely strongly, as demonstrated by the following quotes taken from *Possum Experience* surveys:

... garden ruining, sleep wrecking, filthy, faeces dropping, unmentionable of god's mistakes.

They should be treated as they are in other parts of the world by being made in to garments.

Perhaps those with such strong attitudes against possums are more vocal about their views and, as such, their views find their way into the community through word of mouth, which is then disproportionately reported in the media. If this is the case, then it may be that the situation has

developed into what media scholars call a *spiral of silence* (Noelle-Neumann 1991). A spiral of silence occurs when the media attributes a particular viewpoint as being predominant in the community, leaving those with opposing viewpoints feeling in the minority, making them less likely to speak their minds. This situation can lead to certain views, eventually exerting little influence despite the fact they are actually widely held (Noelle-Neumann 1991). A spiral of silence can alter a person's attitude to an issue, as it has been shown that people tend to express attitudes in line with what they perceive to be the public consensus (Eveland *et al.* 1995, cited in Sparks 2006) and when uninformed or unsure about an issue, their opinions can be heavily influenced by the opinions of others (Decker *et al.* 2001).

Additionally, the attitudes of others have been theorised to influence people's actual behaviour. Fishbein and Ajzen (1975) developed a theoretical model which suggested that attitudinal and normative social influences can be viewed as determinants of behaviour. That is, our behaviour is influenced by our own attitudes toward the behaviour in addition to our beliefs about other people's attitudes (McKnight and Sutton 1994).

This may contribute to why many people who have no experiences with possums consider them to be a pest and have negative attitudes toward them. Considering Papadakis' (1996, p.164) statement that 'information from the media is crucial in framing and forming public opinion' it seems highly likely that the concentration of negative possum stories has influenced public opinion. A shift in the way the media presents possums to the community may help improve the chance of the public accepting their presence in suburbia.

It is concerning to find that almost two thirds of the community either did not feel that wildlife should be encouraged in the suburbs or felt that only certain species should be encouraged. Residents in Sydney, Australia, have shown a similar division in willingness to enjoy the presence of urban wildlife (NSW National Parks and Wildlife Service 2002) indicating that this is not a local phenomenon but that the problem is more widespread. It is interesting to note that of those who did feel wildlife should be encouraged in suburbia, a large proportion felt that possums did not belong there. This may be ex-

plained by the fact that some people only wish to encourage certain species of wildlife. Indeed, the majority of people who only wished to encourage certain species felt that possums did not belong in the suburbs, which indicates that possums do not fit their description of a desired species. This leads to the questions: what types of wildlife are desired in suburbia and why some people consider possums undesirable?

These questions were not addressed in the present study; however, research conducted by the NSW National Parks and Wildlife Service (2002) has provided some insight. Their study found that possums were among the most unwelcome species in suburban backyards, with undesirable species attributes being 'noisy', 'potential to cause damage to home or gardens' and 'annoying'. Conversely, desirable species attributes included 'cute appearance' and 'good image/reputation'. This information may assist in changing public attitudes toward possums in the suburbs. When you consider that a 'good image/reputation' is deemed a desirable factor, it may partially explain why possums are considered unwelcome by some sections of the community. As previously discussed, a 'good image/reputation' is something that has generally not been associated with possums.

Perhaps if the media focused on the positive attributes of possums their acceptance in suburbia would improve. The image portrayed at the moment is that of 'urban pest'. This needs to give way to an image of a native species whose presence can be enjoyed. This is a view of possums shared by a significant proportion of the community, even those who may have previously had negative experiences, as illustrated from the following quote taken from a *Possum Experience* survey:

We blocked the holes in the house but had ready 2 possum boxes in trees around the garden. It seemed a fair compromise ... A fantastic learning experience for my young daughter.

This quote also demonstrates the ability of positive interactions with wildlife to change attitudes and contribute to learning. Attitudinal and behavioural changes are often stronger if they are achieved through hands-on experiences compared to traditional learning (Baldwin 1995). However, although interacting with wildlife may lead to more positive attitudes, if individuals are not willing to allow for such

interaction, there is little hope for attitudinal and behavioural change. Community education programs can only go so far because such programs tend to attract only informed and enthusiastic members of the community, missing those most in need of education. (Davies and Webber 2004). This problem is evident from the study by Miller *et al.* (1999), which found that respondents with negative attitudes toward possums had less interest in learning about possums. Thus, changing their attitudes through education may prove difficult, as such individuals have low levels of interest in learning more. For these reasons, education of children may be a more effective way of shaping community attitudes toward possums.

The attitudes of children are still forming and studies have shown that children are able to alter the environmental attitudes of their parents (Ballantyne *et al.* 2001; Vaughan *et al.* 2003; Volk and Cheak 2003). In addition, adults will often change their environmental behaviours to satisfy their children's wishes (Ballantyne *et al.* 2001). If we are able to create hands-on learning experiences for children that emphasise the positive aspects of living with possums, we may be able to influence community attitudes as a result of this intergenerational transfer of knowledge. Therefore, children's education programs focusing on the enjoyment possums can bring may go a long way to increase positive attitudes. Educating children about living with possums also has another positive outcome: shaping community attitudes of the future. The benefits of childhood education cannot be underestimated and school based urban wildlife programs could be useful in helping to ensure all children are exposed to the message.

Conclusion

Considering such a large number of people have positive attitudes toward possums, it appears that the 'living with possums' vision is achievable. However, many people still have a negative perception of possums, and this needs to be addressed. It is concerning that a large proportion of the community can have negative attitudes toward possums, despite having no direct experiences with them. A positive representation of possums in the media, focusing on positive experiences and learning to live with possums may help improve the willingness of the greater community to live alongside possums. Howev-

er, it is not just possums that urbanites need to learn to live with, nor is the situation unique to Australia; communities across the globe need to learn to live with and connect with urban biodiversity. To this end, the media may have an important role to play, along with school-based educators; with both having potential to shape future attitudes toward wildlife in urban landscapes.

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One Hundred Years Ago

EXCURSION TO ALEXANDRA-AVENUE, &c.

BY F. CHAPMAN

NINETEEN members and friends, assembled at Prince's Bridge on Saturday afternoon, 26th February, for the purpose of examining the geological features of the lower Yarra and the instructive road-sections exposed on the south side of the river. The weather was all that could be desired, being delightfully fine and cool. Turning to the left from the St. Kilda-road, past the Immigrants' Home, the chief geological features of the locality were pointed out by the aid of a sketch map. The former course of the Yarra towards South Melbourne was remarked upon, as seen in the site of swamps formerly crossing the St. Kilda-road and the present Albert Park Lagoon. The prominent rivercliffs of the South Yarra Silurian were noticed, where they begin to rise in front of the artificially truncated mound on which stands the Queen's statue. Some of the red sands from the capping of the Silurian hills had been excavated and thrown down at the back of the home aforesaid, and there was also a small heap of rubbly Silurian at the same place, probably a remnant of the heaps of *debris* which had already afforded one of our members some choice specimens of the slender *Orthoceras*-like shell, *Protobacrites*, and a *Craniella*. The old pumping station was located, and the quarry at the side, which had in former times yielded quite a rich harvest to a few of our indefatigable collectors.

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